THE EFFECT OF CREATIVITY ON EMOTIONS AND PSYCHOLOGICAL WELL-BEING

An Undergraduate Research Scholars Thesis

by

MADELINE M. FLANAGAN

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ABSTRACT

The Effect of Creativity on Emotions and Psychological Well-Being

Madeline M. Flanagan
Department of Psychological & Brain Sciences
Texas A&M University

Research Advisor: Dr. Rebecca J. Schlegel
Department of Psychological & Brain Sciences
Texas A&M University

Engaging in creative behaviors may lead to increased positive emotions and enhanced psychological well-being. An association between creativity and positive affect, satisfaction with life, meaningfulness, and self-esteem is apparent from existing literature. The purpose of this study is to further examine these relationships to determine whether performing a creative task causes improved mood and overall well-being. For the study, 329 college students engaged in either a creative or control writing task and then completed self-report measures of emotion, enjoyment, self-esteem, satisfaction with life, and meaning in life. Their perceived creativity of the task, objective creativeness of their work on the task, and effort on the task were also measured. Subjective creativity was found to promote better mood and well-being through its influence on self-esteem and pleasure. This relationship could have implications for improving the overall mental health and happiness of all individuals.

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SECTION I

INTRODUCTION

Performing more creative activities may cause individuals to experience more well-being and enjoyment in their lives. Existing research links creativity to improved mood, increased happiness, and better coping abilities. Madden and Bloom found that the use of creativity in therapy reduces stress and anxiety: "artistic creativity helps us feel better" (Madden & Bloom, 2004). Also, Kimport and Robbins (2012) found that creativity reduces negative mood states. Another study on creativity found that highly creative individuals were more socially bold, were less tense, and had a stronger self-sentiment than less creative individuals (Mallappa & Upadhyaya, 1977). One longitudinal study by Amabile, Barsade, Mueller, and Staw (2005) measured the effect of creativity on happiness and satisfaction with each day at the workplace. They measured creativity with self-assessed creative thought and problem solving and creativity by peer assessment. Higher positive affect was found to be a direct consequence of creativity. One study explored the link between creativity and life satisfaction in older adults and found that a creative intervention had a significant effect on life satisfaction compared to pre-intervention life satisfaction (Goff, 1993). The positive relationship between creativity and various aspects of psychological well-being is a recurring theme throughout literature.

Previous research also links creativity with other variables known to be related to well-being. Past studies have found associations between creativity and higher self-confidence, independence, and intelligence (Barron & Harrington, 1981; Stein, 1968). Additionally, self-esteem has been shown to be significantly associated with creative ability (Shukla & Sinha, 1993), as well as with creative attitude and creative thought (Goldsmith & Matherly, 2001).

However, studies on the connections between creativity and self-esteem have failed to establish clear directionality of the relationship. Some have theorized that the association is due to a positive effect of self-esteem on creative skill and ability, but this relationship proves difficult to verify because of the ethical issues implicated in manipulating self-esteem. It is possible, however, to determine whether creativity leads to increased self-esteem by manipulating creativity.

In many previous studies, self-esteem has been found to be highly linked to psychological well-being, and in many cases, it had a mediating effect on both positive and negative relationships between well-being and different variables. For example, one longitudinal study found that self-esteem mediated the negative effects of stress from examinations on well-being (Xiang, Tan, Kang, Zhang, & Zhy, 2017). Additionally, self-esteem was found to mediate the relationship of well-being with occupational over-commitment and effort-reword imbalance (Wang, Liu, Yu, Wu, Chang, & Wang, 2017). Another recent study demonstrated how self-esteem mediated the positive effect of locus of control on psychological well-being (Pu, Hou, & Ma, 2017). Furthermore, self-esteem has been shown to have a significant mediating role in the relationship between well-being and optimism (Duy & Yildiz, 2017), and through self-esteem, social support indirectly increases well-being and decreases depression (Moradi & Cheraghi, 2014). The existing literature indicates that increased self-esteem promotes enhanced well-being, and self-esteem is highly associated with creativity. Therefore, if creative behavior causes higher levels of self-esteem, this may indirectly cause increased well-being, which may be in addition to direct effects of creativity on well-being.

The goal of the current study is to investigate whether completing a creative task will lead to increased psychological well-being, in the form of increased state emotion, enjoyment

derived from the task, satisfaction with life, and meaning in life and to explore potential mediating variables of the effects of creativity. My hypothesis is that participants who engage in a short creative task will have increased positive emotions and subjective well-being compared to participants in the control and also that participants in the creative condition will enjoy the task more than the participants in the control condition. Furthermore, due to previous findings in literature, I hypothesize that self-esteem will mediate the effect of creativity on different aspects of well-being. Perceived creativity of the task by the participant, objective creativity of the written story from the task as indicated by research assistants, and effort of the participant on the task, measured by time spent on task and length of story might also interact with or mediate creativity's effects.

I hypothesize that performing creative behaviors and engaging in creative thought cause one to feel increased enjoyment, self-esteem, and positive emotion due to cognitive processes that take place during these activities, which may, in turn, affect aspects of well-being and lead to overall enhanced psychological well-being. Additionally, I predict that the participants in the creative condition will be more inclined to spend additional time and thought on the task, which will translate to longer written stories compared to participants in the control condition. The creative task may stimulate a rush of imaginative ideas and a stream of creative thinking that will cause both longer stories and boosts in cognitive health and welfare.

The importance of this study is that it explores the effects of performing a small-scale creative activity on well-being and mood, while most studies on creativity explore long-term creative interventions or purely correlational links between creativity and other variables. The study could potentially have major implications for the use of creative activity in the mental

health field for psychotherapy, in work and education to increase satisfaction and performance, and in personal development to boost one's overall quality of life.

SECTION II

METHODS

Participants

There were 207 female and 122 male participants with an average age of 18.98 years. Participants completed the study in the Texas A&M Existential Psychology Research Lab, and they received credit for an introductory psychology course through their participation in the study.

Measures and Design

The study uses an independent samples t-test with assigned task (creative vs. control) as the between-subjects independent variable and different measures of well-being as the dependent variables. The study also uses correlational analyses and mediation analyses to further investigate the variables of interest.

For the study, participants were assigned to either a creative or control task. They were given a maximum of 8 minutes to complete the task, and their time spent on the task was recorded. After completion of the assigned task, each participant completed the following measures.

Emotion

Self-reported positive and negative emotions following the task were measured using an adjusted Scale of Positive and Negative Experience (SPANE; Diener, Wirtz, Tov, Kim-Prieto, Choi, Oishi, & Biswas-Diener, 2010). Participants rated levels of six different positive emotions (positive, good, happy, pleasant, joyful, contented) and six different negative emotions (negative, bad, unpleasant, sad, afraid, joyful, angry) on a scale of 1 to 5 (1 = *current very low level of an*

emotion; 5 = *current very high level of an emotion*). An overall combined emotion score was also calculated using averages of positive emotion and reverse coded negative emotion. Cronbach's Alpha was computed for the different positive emotions, the different negative emotions, and the combined positive and reverse coded negative emotions. All of these measures were determined to be highly internally consistent (Positive emotion: $\alpha = 0.94$; Negative emotion: $\alpha = 0.87$; Combined: $\alpha = 0.90$)

Meaning in Life

Meaning in life was assessed using the presence subscale of the Meaning in Life Questionnaire (MLQ; Steger, Frazier, Oishi, & Kaler, 2006). Participants indicated their level of agreement with five statements on a 7-point scale (1 = *strongly disagree*, 7 = *strongly agree*). Participants indicated their agreement with each statement (e.g., "I understand my life's meaning"). Higher numbers indicate one feels more meaning in his or her life. The scores for the different items of the scale were highly consistent with one another ($\alpha = 0.90$).

Satisfaction With Life

Satisfaction with life was assessed using the Satisfaction with Life Scale (SWL; Diener, Emmons, Larson, & Griffin, 1985). Participants revealed the level that they agreed with statements on a 7-point scale (1 = *strongly disagree*, 7 = *strongly agree*). Participants indicated their agreement with 5 different statements (e.g., "If I could live my life over I would change almost nothing"). Higher numbers show that one has more satisfaction in their life. The scale was internally consistent ($\alpha = 0.86$).

Self-Esteem

The first subscale of the Self-Esteem Rosenberg Self-Esteem Scale was used to measure self-esteem level following the task (RSES; Rosenberg, 1965). Participants rated the amount that

they agreed with ten different statements relating to self-esteem on a 7-point scale (1 = *strongly disagree*, 7 = *strongly agree*). The measure includes statements such as "I certainly feel useless at times" (reverse coded) and "On the whole, I am satisfied with myself." Higher scores indicate that one has a high level of self-esteem. The measure had high internal consistency ($\alpha = 0.90$).

Enjoyment of Task

To measure the level of pleasure that participants derived from the task, participants were presented with five different statements such as "I thought the task was boring" (reverse coded) and "Completing the task gave me a sense of pleasure." They were prompted to rate how much they agreed with these statements on a scale of 1 to 7 (1 = *strongly disagree*, 7 = *strongly agree*). Higher scores imply that the participant greatly enjoyed the task. The internal consistency of the measure was high ($\alpha = 0.90$).

Subjective Creativity of Task

For the last self-reported measure of the study, participants indicated their own perceived level of creativeness of the task by indicating their agreement with two different statements relating to their subjective creativity of their work on the task ("I used my imagination when completing the task" and "My work on the task was creative") on a scale of 1 to 7 (1 = *strongly disagree*; 7 = *strongly agree*). Higher scores suggest that the participant thought their work on the task was highly creative. The internal consistency of the items was sufficiently high ($\alpha = 0.81$).

Objective Creativity of Task

To determine the objective creativity of the participants' work on the task, six different research assistants rated the level of creativity and level of originality of the stories written by the participants on a scale of 1 to 5 (1 = *not at all creative/original*; 5 = *very creative/original*).

Higher scores indicate higher levels of objective creativity. The interrater consistency of the six research assistants was very high ($\alpha = 0.93$).

Effort on Task

The length of the participants' written stories during the task as measured by word count and the time spent on the task in seconds were recorded to measure the amount of effort put in for the task. The length of the participants' stories ranged from 13 to 323 words ($M = 121.37$, $SD = 66.81$), and the amount of time spent on the task ranged from 44 to 479 seconds ($M = 264.76$, $SD = 135.09$). Higher word count and more time imply higher levels of effort expended on the task.

Materials and Procedure

At the beginning of the study, participants were escorted to individual computer desk areas and given instructions by research assistants. The computer program, Qualtrics, was used as the platform for the study and was used to collect the data for the study. Before beginning the study, participants were provided with an information sheet and were told that the purpose of the study was to examine the relationship between the writing process and different emotions and personality traits. Participants were then randomly assigned to the creative or control condition by Qualtrics.

Participants in the creative condition were presented with the beginning of a short story: "You hear your stomach growl loudly. You stand up, walk over to the kitchen, and open the refrigerator. Much to your dismay, it is completely empty except for some ketchup and butter. You decide that a trip to the grocery store is imminent." They were also given the end of the story: "After finishing your meal, you stand up and thank the strange being for saving your life and for the delicious food. You then tell him that it is time for you to get back to Earth." They

were instructed to complete the middle of the story on their own and to be as imaginative as possible. Participants in the control condition were given the same beginning of the story but with an alternate ending: “After finishing your delicious meal, you stand up, clean off the table, and wash your hands. You then carry on with the rest of your day as usual.” They were instructed to fill in the middle of the story and to be as realistic as possible. Participants in both conditions were given a maximum of eight minutes to complete the task.

Upon completion of the task, all participants completed measures of state emotions, pleasure of task, presence of meaning of life, satisfaction with life, self-esteem, and perceived creativity of task. At the end of the study, participants were debriefed and informed of the actual purpose of the study.

SECTION III

RESULTS

There were 165 participants in the control task group and 164 participants in the creative task group. The results were analyzed using an independent samples t-test to explore the differences between the two groups for each of the dependent variables. Correlational data between the different variables was analyzed as well to explore the relationships between the creativeness of the task and different measures of well-being. Mediation analysis was also examined to further investigate the relationship between perceived creativity of the task and different variables relating to well-being.

The results of the independent samples t-test are illustrated in Table 1. There was not a significant difference between the two groups in terms of positive and negative emotion, combined emotion, meaning in life, or satisfaction with life, which suggests that performing a short creative task does not directly cause changes in emotion, meaning in life, or satisfaction with life. The creative group had slightly higher pleasure of task compared to the control group (M = 4.85, SD = 1.34; M = 4.62, SD = 1.30); however, the difference was not statistically significant (t (327) = -1.55, p = 0.12). The participants in the creative group took significantly more time to perform the task compared to participants in the control group (M = 326.68, SD = 120.33; M = 203.23, SD = 120.27; t (327) = -9.31, p = 0.00), and the participants in the creative group also wrote significantly longer stories compared to the participants in the control group *(M* = 149.90, SD = 65.99; M = 93.01, SD = 54.58; t (327) = -8.52, p = 0.00). The two groups significantly differed in their level of self-esteem following the task (t (327) = -2.37, p = 0.02); the creative group showed elevated levels of self-esteem compared to the control group (M =

5.10, *SD* = 1.03; *M* = 4.82, *SD* = 1.14), which suggested that performing the more creative task caused higher self-esteem. Additionally, the creative group perceived the task as significantly more creative compared to the control (*M* = 5.48, *SD* = 1.07; *M* = 4.57, *SD* = 1.53; *t* (327) = -6.30, *p* = 0.00), and the stories written by the participants in the creative condition were rated as more objectively creative by research assistants compared to the stories of the participants in the control condition, (*M* = 3.18, *SD* = 0.74; *M* = 2.27, *SD* = 0.90; *t* (327) = -9.96, *p* = 0.00), which suggests that the creativity manipulation was successful to some extent.

Table 1: Independent Samples t-test Results Based on Task

	Task	N	Mean	SD	t-test	df	Sig.
Combined Emotion	Control Creative	165 164	3.85 3.93	0.68 0.64	-1.09	327	0.28
Positive Emotion	Control Creative	165 164	3.13 3.25	0.99 0.95	-1.10	327	0.27
Negative Emotion	Control Creative	165 164	1.43 1.39	0.63 0.61	0.60	327	0.55
Meaning in Life	Control Creative	165 164	5.03 5.02	1.30 1.29	0.09	327	0.93
Satisfaction With Life	Control Creative	165 164	4.41 4.84	1.32 1.17	-0.93	327	0.35
Pleasure of Task	Control Creative	165 164	4.61 4.85	1.30 1.34	-1.55	327	0.12
Self-Esteem	Control Creative	165 164	4.82 5.10	1.14 1.03	-2.37	327	0.02
Subjective Creativity	Control Creative	165 164	4.57 5.49	1.53 1.07	-6.30	327	0.00
Objective Creativity	Control Creative	165 164	2.27 3.18	0.90 0.74	-9.96	327	0.00
Time Spent on Task	Control Creative	165 164	203.23 326.68	120.27 120.33	-9.31	327	0.00
Length of Story	Control Creative	165 164	93.01 149.90	54.58 65.99	-8.52	327	0.00

Furthermore, the correlations between the participants' subjective and objective creativity of the task and the variables measuring psychological well-being were examined, and the results are shown in Table 2. There was a strong positive relationship between perceived creativity of the task and enjoyment of the task ($r_{(327)} = 0.49$, $p = 0.00$). There were also moderate positive relationships between subjective creativity of the task and positive emotion ($r_{(327)} = 0.31$, $p = 0.00$), as well as combined emotion ($r_{(327)} = 0.27$, $p = 0.00$). Additionally, there were mild significant relationships between perceived creativeness of the activity and meaning in life ($r_{(327)} = 0.23$, $p = 0.00$), satisfaction with life ($r_{(327)} = 0.17$, $p = 0.00$), and self-esteem ($r_{(327)} = 0.17$, $p = 0.00$) following the activity. Objective creativity was strongly positively correlated with subjective creativity ($r_{(327)} = 0.49$, $p = 0.00$) and had significant correlations with self-esteem ($r_{(327)} = 0.11$, $p = 0.04$) and pleasure of task ($r_{(327)} = 0.30$, $p = 0.00$) but not with other aspects of well-being or mood. Self-esteem was strongly positively correlated with satisfaction with life ($r_{(327)} = 0.56$, $p = 0.00$), meaning in life ($r_{(327)} = 0.52$, $p = 0.00$), positive mood ($r_{(327)} = 0.43$, $p = 0.00$), and combined mood ($r_{(327)} = 0.52$, $p = 0.00$) but was not significantly correlated with pleasure from task.

Table 2: Bivariate Correlations Between Different Measures Following Task

	1	2	3	4	5	6	7	8
1. Subjective Creativity	-							
2. Objective Creativity	.49**	-						
3. Combined Emotion	.27**	.08	-					
4. Positive Emotion	.31**	.08	.90**	-				
5. Negative Emotion	-.10	-.03	-.72**	-.34**	-			
6. Meaning in Life	.23**	.03	.42**	.36**	-.31**	-		
7. Satisfaction With Life	.17**	.02	.44**	.36**	-.39**	.50**	-	
8. Pleasure of Task	.49**	.30**	.29**	.33**	-.11*	.10	-.06	-
9. Self-Esteem	.17**	.11**	.52**	.43**	-.44**	.52**	.56**	.01

A multiple mediation analysis was performed using the Hayes PROCESS macro (Model 4; Hayes, 2013), and bias-corrected coefficients were estimated from 5,000 bootstrap samples (Preacher & Hayes, 2008), which is illustrated in Figure 1. Significant indirect effects of subjective creativity on combined mood were found through mediation of self-esteem, 95% CI = [0.01, 0.07], and enjoyment of task, 95% CI = [0.03, 0.09]. These mediation analyses suggest that when an individual performs a task that he or she perceives as creative, they may experience an increased level of self-esteem and a degree of enjoyment of the task, which, in turn, predicts improvements in mood. It should be noted that there was no significant direct effect of subjective creativity on mood, 95% CI = [-0.02, 0.07]. However, according to recent theorizing on mediation analysis (Hayes, 2009; MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002; Rucker, Preacher, Tormala, & Petty, 2011; Shrout & Bolger, 2002; Zhao, Lynch, & Chen, 2010), the presence of a total direct effect is not a requirement for observing significant indirect effects through theoretically meaningful mediators.

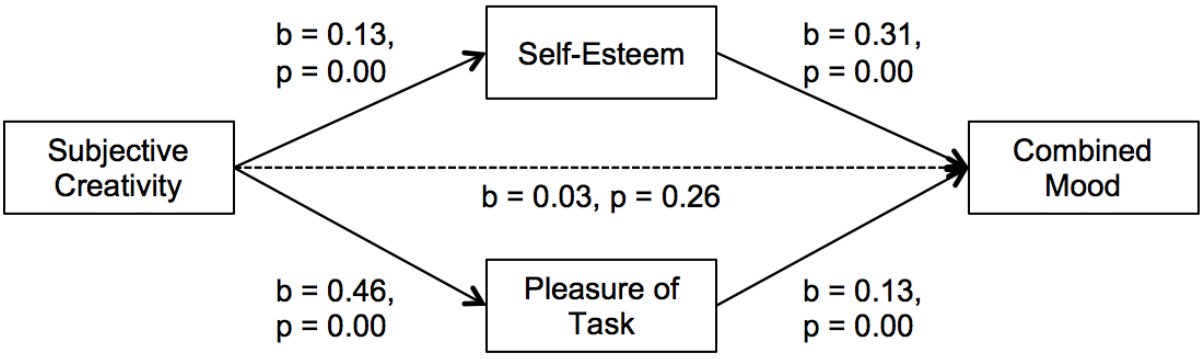

Figure 1: Mediation analysis: Indirect Effect of Subjective Task Creativity on Mood

Additionally, significant direct and indirect effects of subjective creativity satisfaction with life were found through mediation of self- esteem, 95% CI = [0.50, 0.72], and pleasure of task, 95% CI = [-0.23, -0.03], which is shown in Figure 2. This model suggests that when a person engages in a subjectively creative activity, he or she may experience increased self-esteem and pleasure, which will, in turn, predict increased satisfaction in life. Subjective creativity also directly influenced satisfaction with life, 95% CI = [0.04, 0.22].

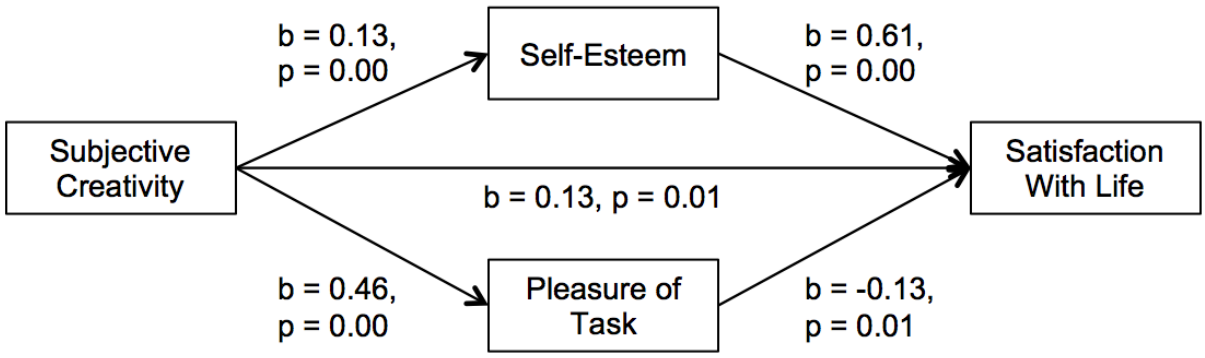

Figure 2: Mediation Analysis: Direct and Indirect Effect of Subjective Task Creativity on Satisfaction With Life

Furthermore, a significant indirect effect of perceived creativity of the task on meaning in life was found through mediation of self-esteem, 95% CI = [0.03, 0.13], and a significant direct effect of subjective creativity on meaning in life was also found, 95% CI = [0.03, 0.22], which is depicted in Figure 3. This implies that performing a task that a person believes is creative may promote increased feelings of meaning in life and enhanced levels of self-esteem, which can lead to additional increased meaning in life.

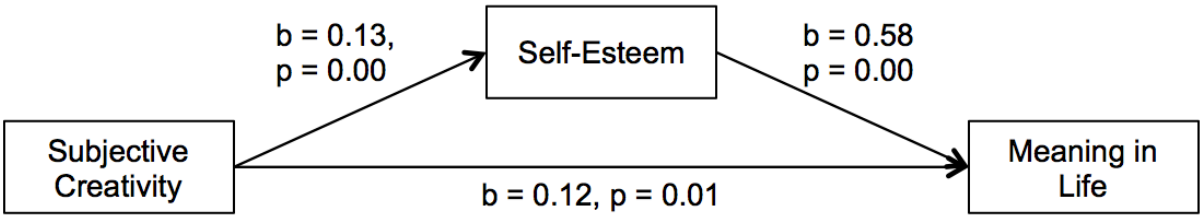

Figure 3: Mediation Analysis: Direct and Indirect Effect of Subjective Task Creativity on Meaning in Life

SECTION IV

DISCUSSION

The results of the study showed that performing a short creative task can lead to increased self-esteem. The results also showed that when a task is more creative, individuals spend more time on the task and exert increased effort. Although the participants in the creative task group did not experience significantly improved levels of mood, meaning in life, or satisfaction with life compared to the control task group, participants in either group who viewed the task as more creative had significantly better mood and reported elevated enjoyment, meaning in life, and satisfaction with life following the task. Participants who believed that the task was more creative also experienced increased pleasure and self-esteem following the task, which promoted improved mood and higher life satisfaction. The influence of creativity on self-esteem may have also led to increased meaning in life after the task.

The results suggest that when people engage in thoughts or actions that they see as creative, they may feel better about themselves and may feel a sense of accomplishment through the generation of their own original ideas, and these increased feelings of competence and confidence in themselves promote enhanced overall well-being. In addition, performing creative activities provides one with an outlet to escape reality and use one's imagination, which is seen as pleasurable and desirable by most individuals, and this may also lead to more positive emotion and life satisfaction. It may also be the reason that the participants in the creative condition exerted themselves more on the task compared to those in the control condition through writing longer stories and spending more time planning and/or writing their stories.

Participants who wrote more creative stories, as rated by coders, were more likely to find the task pleasurable and had higher levels of self-esteem after the task. This could be because participants who wrote more objectively creative stories may have creative personalities and better creative abilities. Therefore, performing a creative task is inherently even more pleasurable for them and builds more self-confidence. The task gives them an opportunity to show off their creative skills and allows them to do something that they would likely readily engage in during their own time purely for enjoyment. However, objective creativity of task performance was not related to mood, meaning in life, or satisfaction with life, which indicates that one's own perception of the creativeness of an activity, not objective creative performance or skill, is likely the proximal factor related to improvements in mood and psychological well-being.

The results of the study are somewhat expected and mostly support the hypothesis. Although the task manipulation failed to directly lead to better well-being, the results clearly indicate that subjective creativity of the task relates to enriched psychological health. Furthermore, this relationship is strengthened by the mediating role of self-esteem and task enjoyment, which are promoted by engaging in a subjectively creative task, and may, in turn, contribute to more overall happiness. Moreover, these findings are consistent with previous literature exploring the positive effects of creativity and showing the mediating role of self-esteem in relation to different facets of well-being.

The dependent variable of the study may not have directly caused better mood and well-being because of the shortcomings of the creativity manipulation. Though the instructions made the creative group much more inclined to engage in creative thought, the instructions for the control group did not completely inhibit creativity. Some participants in the control group may have used their imagination in writing their stories if they are more inherently creative and had

the inclination to add superfluous details and embellish their stories with original ideas. Additionally, if the situation described in the instructions for the control group (going to the grocery story, purchasing food, and providing a meal for oneself) is not common for some of the participants (i.e. they live in a college residence hall and do not typically eat in their own place of residence), they would be required to generate new ideas and think creatively for their story. This may have led to a decreased difference in the task creativeness for the two groups. To limit the creativity of the control group, alternative methods could be used for the manipulation. For example, the participants in the control group could be asked to describe their day or a recent specific experience, while the participants in the creative group could be asked to imagine and elaborate on how their day or some specific experience might have played out differently if some impossible or very unusual occurrence had taken place.

The study may have also been limited by the participant pool. The participants were all college students with an average age of about 19 years. The influences of creativity on mood and psychological well-being could be age dependent. The strength of the relationship might differ for young children or older adults. A way to test for age dependence would be to perform a longitudinal or cross sectional study on creativity and well-being.

Another limiting factor may have been education. All of the participants in the study are enrolled at a renowned Texas university, so the participant pool was not representative of the population as a whole. The participants can be assumed to have a certain level of intelligence and creative ability from using creativity throughout their education, which may have affected how performing the creative task led to increased self-esteem. Those with lower levels of education may not experience the same effect as a result of decreased creative ability. The study could be

repeated in a sample that is more representative of the population to determine whether the results carry over for individuals with a wider range of intelligence and creative skills.

In conclusion, individuals experience higher pleasure and self-esteem after engaging in a task that they believe exercises their creativity, which may, in turn, influence mood and aspects of psychological well-being. Though this link should be further examined to clearly establish causality, the study's findings suggest that creative activities can be utilized to enhance people's overall psychological health and quality of life. This relationship could be employed in the mental health field to treat mental illnesses, as well as in work and education spheres to decrease stress and burnout and increase productivity and fulfillment.

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